# Ontario fish and wildlife Review

Vol. 16, No. 1, 1977

This issue features ponds such as one near Bradford that's very lucky for ducks. It was created by fire.

Lang Chamberlin reports a pond that rumbles and erupts north of Kirkland Lake (above). It scares anglers and traps moose.

Bob Wenting tells how a management pond made Aylmer an important whistle stop for whistling swans.

Dennis Voigt continues his series on canids with report and cover photo on the highly adaptable coyote. Our cover brown appears by courtesy of the Royal Ontario Museum.

John George boosts the brown and Carsten Jorgensen shows it's hard to beat the drum.

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VOL. 16, No. 1 SPRING, 1977

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*The goal of the Ministry of Natural Resources is to provide opportunities for outdoor recreation and resource development for the continuous social and economic benefit of the people of Ontario, and to administer, protect and conserve public lands and waters.*

Ontario
Ministry of Natural Resources

Hon. Frank S. Miller
Minister

Dr. J.K. Reynolds
Deputy Minister

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EDITORIAL

## THE FACTS OF LIFE

Don't blame the teacher if your kids are environmental slobs. Blame our way of life. Blame our approach to education. And blame yourself.

Your children face a grim future. As the population grows and technology advances, they may expect a steady degradation in the quality of life as we understand it. Unless present trends are reversed, living conditions in the future will not be acceptable by present standards. We can predict only eventual disaster.

Consider the facts. Most people live in an artificial world and receive the necessities of existence through an elaborate system that screens them from the facts of life. Water comes from a tap — not from a well or lake. Milk comes from a container — not from a cow. Bread comes from a store rack — not from a grain field. Meat comes from a cold counter — not from a slaughtered animal.

Many common practices show our alienation from reality. For example, garbage is simply put out for collection without a thought for its final disposal and land contamination; human wastes are flushed away like magic without a thought for their final disposal and water pollution; and industrial wastes often are let go irresponsibly in spite of governmental efforts.

Fish are threatened and it's our turn next.

Strong words but true. An understanding of the environment, and their part in it, must become an integral part of the lives of children. It must be emphasized every day not only in the classroom but also at home so children will grow up and live with an active appreciation of the necessity for environmental safeguards.

Education in ecology is a goal of the school system but it must be reinforced. We can rely on teachers to do a good professional job, but ecology is a complicated science and some teachers may not be well enough informed to assume the responsibility for teaching it without additional assistance.

To ensure that school curricula are up to date, ecologically speaking, professional ecologists and a number of agencies must assume a more active role in working with school boards. And parents will have to make sure their concerns are voiced through home-and-school groups.

As a parent you should take the first steps now to teach your children the facts of life. See to it that they spend a lot of time in natural settings. Go hiking, camping, bird-watching, hunting, fishing or anything you like. Make sure the kids get out there often and learn the sight, sound, smell, feel and taste of nature. In this way you can help your children to have a well developed environmental conscience so that as adults they will have the knowledge and conviction to make sound environmental decisions.

# INTROSPECT

*A personal opinion*
*not necessarily endorsed by*
*the Ministry of Natural Resources*

## EIA
## Environmental Impact Assessment or "Easy Index for Approval"

*by D. P. Dodge, Supervisor*
*Environmental Dynamics Section*
*Fisheries Branch*

No one can deny that incomplete planning, lack of scientific knowledge and tunnel vision have caused extensive and often irreparable damage to Ontario lands and waters. No one will disagree that such damage should be prevented in the future.

Ontario affirms under The Environmental Assessment Act that the proponent of a project is responsible for showing the project will have little or no detrimental effect on Ontario land, water and air resources. Enter environmental impact assessment (EIA).

Although EIA was conceived to prevent the deterioration of natural environments, several problem areas will have to be addressed to make it work well.

First. Consider who is qualified to prepare an EIA and who is qualified to evaluate its completeness. In the past decade, all those who wanted to have authoritative clout called themselves ecologists or environmentalists. Face it: environmental science has been a fad. Anyone who wets a finger to test wind direction or gazes at the sky through a water sample may think he or she is an ecologist. We must make sure that those who prepare and evaluate EIAs are qualified.

Second. Scientific literature abounds with good environmental research – but how much is relevant in showing cause-and-effect relationships? Modelling, bio-assaying and extrapolation, based on controlled laboratory studies, are common, but few field studies have been performed to analyse the effects of specific environmental stresses. We must see that studies are carried out to assess these stresses, and see that the information so gained is used to up-date environmental protection standards.

Third. The volume of EIA statements generated by any scheme will double the time needed for approval. Imagine an 18-month delay in a multi-million-dollar project for want of EIA approval while social and economic pressures demand the project begin. We must make sure that EIAs are not generated cookbook style to meet the demand.

Fourth. What single person or group is prepared by education and experience to evaluate adequately the meaning of EIA-generated data? A new body of expertise must be developed soon if a good environmental protection job is to be done.

What do we do? Where do we go?

I suggest that an appropriate body must judge the competence of "professional" ecologists and require them to have specific qualifications. Both the generators and evaluators of EIA statements need special training to advance their expertise.

We will need pilot studies of major potential environmental degradation from conception to completion. Such studies will provide the information needed to eliminate many practices that harm the environment. They can also train scientists to evaluate the environmental impact on the dynamics of the whole system.

These important steps must be taken if EIA is to achieve its full purpose.

## TRAPPERS AGE WELL

Ontario leads Canada in wild fur production. In the 1975-6 fur year, Ontario wild fur was valued at $7,998,266, about one-quarter of the national total and substantially ahead of Quebec, the closest rival. Much of the production was accounted for by hardy experienced trappers, many in their 60s and 70s, who continue to harvest their quotas much to the dismay of men half their age. Of 10,672 Ontario trappers of known age, 2,062 are 61 years of age or older.

*K. Charles, Kirkland Lake District*

## ICE FISHING HITS LAKERS

It is generally believed by Ontario biologists that the maximum yield of lake trout the average lake can sustain is only about one-half pound per acre per year. Winter fishing, particularly in January, can sometimes be too successful. There have been instances where yields of lake trout have surpassed one-half pound per acre in only a few weekends.

*Marie-France Bernier, Sault Ste. Marie District*

*A radio-collared and ear-tagged subject, typical of eastern coyotes.*

# THE ADAPTABLE COYOTE

## Second of a Series on Ontario's Wild Canids

*Report and Photos by D. R. Voigt*
*Biologist, Fish and Wildlife Research Branch*

MANY people do not believe that coyotes exist in Ontario. They think that coyotes belong in the west and that another animal, the brush wolf, occurs in Ontario. The word 'wolf' conjures up emotional reactions and leads to misconceptions about the animal which, properly speaking, should not be called a wolf but a coyote.

The coyote, *Canis latrans*, was recorded as spreading into Ontario in the early 1900s at three border points: Kenora, Sault Ste. Marie and Sarnia. Since then the coyote has become common in southern Ontario, especially south of the Precambrian Shield, and in scattered areas throughout the north, particularly where there is open country. Generally, coyotes are not prevalent where there are timber wolves because the two species prefer different habitats.

Coyotes have continued to spread eastward across the continent to the New England states, the Gaspe and New Brunswick. Many of these animals are significantly larger than the coyotes of the western plains and have more massive skulls. Thus, they have been dubbed the eastern coyote (*Canis latrans* variety), a new subspecies. It is believed these canids possess genes from timber wolves, *Canis lupus*, and dogs, *Canis familiaris*.

In Ontario the situation is much more complex and may be still changing. In any case, we can find small wolves, large coyotes, dog-like hybrids, coyote-like hybrids and typical western-type coyotes. We are currently in the process of determining just how common these various groups are and whether there is any relationship between type and area, sheep predation, food habits, density, and rabies involvement. Certainly coyotes are very adaptable animals and exhibit a great deal of variability which has probably allowed them to survive in modern times. It is this variability which has intrigued biologists in recent years.

It is evident that Ontario coyotes are gen-

erally much smaller than commonly believed. The average weight of more than 250 coyotes was only 32 pounds. Thus, it is not surprising that small mammals make up most of the food of coyotes. In fact, of coyotes recently examined, nearly 30 per cent had been eating mice.

Anyone watching coyotes hunt mice can't help but be impressed with their efficiency. Their ability to detect the squeaks and rustles of mice, leap high in the air and pounce on them with forelegs stiff is amazing to watch.

Other important prey species may include cottontails, European hares and varying hares depending upon local distribution and abundance. Groundhogs are eaten seasonally and the diversity of other food items, such as squirrels, birds, apples, muskrats and garbage, indicates coyotes will take advantage of many food sources.

It may surprise some people that only five per cent of the coyotes examined had any remains of sheep in their stomachs. We have actually found more swine and cattle remains in coyote stomachs but this was probably due to the eating of carrion.

There is no doubt, however, that some coyotes develop a fondness for sheep. The problem is not nearly as severe in Ontario as in the western states where the high cost of sheep predation has been responsible for a sudden increase in research on coyotes – at last count, almost a hundred projects. Some of the findings may have application in Ontario once basic population dynamics are understood here. We are only now gaining an understanding of the composition of coyote populations.

In the fall of the year, almost 65 per cent of the coyotes taken by hunting and trapping are young of the year. This varies by areas from only 45 to as high as 75 per cent. Generally there are about equal numbers of males and females. Of the coyotes examined, few were more than three years old but some had survived for six years. Coyotes can be aged accurately by counting rings in their teeth with the aid of a microscope.

The number of pups per female can range from three to ten but averages about six. It is easy to see how a population can increase after a high harvest even though most females do not breed in their first year.

In many parts of Ontario, the harvest has been quite high and the continued demand for long-haired furs will probably mean continued high use of this resource. The difficulty of trapping and hunting coyotes, and their high reproductive rate, has probably prevented any great declines in the population.

People interested in hunting coyotes with dogs should be able to find enough opportunity. Generally, the hunters out after first snowfall succeed in getting more old animals than do trappers in the fall. Hunting, trapping and the fluctuating food supply appear to be keeping the coyote population stable. These controls vary in importance in different areas.

In the past year we have been studying a group of coyotes in the same area as our fox study (Vol. 15, No. 1). One radio-collared adult female has provided some new insights into movements and activity of coyotes. During the winter this animal covered an area of 20 square miles. Although there were definite travel routes, road-crossings and resting areas, there was no predictability in her movement patterns.

The Ministry of Natural Resources has recently been radio-tracking six pups and two adults. The coyote family certainly appears to be very sociable. Family groups as large as 11 animals were encountered in the late summer. By November, the pups had travelled as far as 15 miles from home. Coyote movements and activity patterns are similar to those of foxes in some cases and timber wolves in others.

Perhaps it is their behavior patterns that allow coyotes to thrive almost in our backyards. Although many people are not aware of it, coyotes are quite common in southern Ontario and for several years have frequented the Don and Humber River valleys within the urban limits of Toronto. Their tracks are often confused with dog tracks but can be distinguished with care.

For many people there is little hope of sighting coyotes but they may be seen crossing country roads at night or hunting in fields in the early morning. Radio-tracking indicates early morning activity is quite common. The chance of seeing two or three coyotes together is best early in the year, especially on the snow during the mating season in February and March. Coyotes respond to imitations of their howls just as timber wolves do in the north.

In the final analysis, it looks as if coyotes are here to stay. It is in our best interest to learn all we can about these adaptable animals, to manage them where possible and to control them only when necessary.

## FAR-RANGING FOX

In reporting the fall dispersal of fox pups (Vol. 15, No. 1), Dennis Voigt had no Ontario samples to approach the U.S.A. record of 240 miles. He has since radio-tracked a male fox pup 150 miles and says it is now 70 miles from home.

*Three young coyotes, ear-tagged and radio-collared.*

*A western-type coyote observed in southern Ontario.*

*Coyotes on a winter hunt in agricultural area.*

*Five coyote pups at den site.*

*Whistling swans at Aylmer Wildlife Management Area.*

# WHISTLE STOP

*Report and photos by R. J. Wenting*
*Biologist, Aylmer District*

WHISTLING swans are magnificent white birds easily distinguished from other waterfowl by their large size. They are more numerous than the other native swan of North America, the larger and once endangered trumpeter swan of the west.

The continental population of whistling swans is estimated at 100,000 birds. They breed across the Arctic from Alaska to Baffin Island. On their winter range, they are separated geographically into two distinct populations, one on the Atlantic coast of the United States and the other on the Pacific coast.

While by tradition the Atlantic population has wintered in the Chesapeake Bay area of Maryland and Delaware, recent evidence indicates a progressive trend to more southerly latitudes in Virginia and North and South Carolina. Heavy traffic of coastal tankers in the narrow confines of Chesapeake Bay, and massive industrial and municipal pollution pouring into the Bay from the Susquehanna and Potomac Rivers, have resulted in severe deterioration of the marsh habitats and the aquatic vegetation that is normally the swans' winter diet. Initially, the birds adapted by moving into the harvested corn fields around the Bay area to feed. This began almost ten years ago and continues with the birds that winter in Delaware and Maryland.

The recent southerly movement of ever-increasing numbers of birds seems to reflect their preference for aquatic food. The national wildlife refuges of Virginia and the Carolinas offer good aquatic habitat and little disturbance. Nevertheless, for most of the swans on the Atlantic coast, field-feeding has become habitual. It is a habit they take with them on their annual spring migration northwest – a journey of 3,000 to 4,000 miles lasting up to three months.

In early March, the swans gather in the northerly reaches of the Bay. Adult, mated birds are the first to leave and may be accompanied by their young of the previous year – still in their drab-grey plumage. Other juve-

*Whistling swans in the air – a delight to the eyes and ears.*

niles and unpaired adults tend to leave somewhat later.

The first major 'staging area', where swans gather for several days to feed and rest, is 400 to 500 miles to the northwest in the lakeside marshes of Lake Erie and Lake St. Clair. But here too the deterioration of needed aquatic habitat (the result of pollution and recent elevated lake levels) has forced the swans to persist in their newly-acquired field-feeding behaviour.

The primary feeding areas are near Chatham and Wallaceburg while others are found at Rondeau, Wheatley, Leamington, Pelee, Long Point and Turkey Point. Evidence suggests the swans move back and forth between the lakes and inland feeding areas.

Since the development of waterfowl habitat at the Aylmer Wildlife Management Area, whistling swans have become early spring visitors. In 1973 more than 100 swans landed and fed for short periods in the flooded corn fields north of the Aylmer sanctuary. In 1974 the visiting swans increased to more than 500 and were fed cob corn inside the enclosure to attract them to the protected area. In 1975 more than 1,500 swans arrived.

Some of the 1975 swans were wearing plastic neck collars with white lettering. The normal procedure for monitoring waterfowl movements has been to use the information obtained from the return of aluminum leg bands issued by the United States Fish and Wildlife Service. The plastic bands (tarsal and collar) appear in five colors (blue, yellow, red, green and black) which indicate the banding location.

Only blue, red and black collars were observed at Aylmer. Blue collars identified swans marked on the Alaska breeding grounds; red indicated swans marked on the breeding grounds in the Yukon and Northwest Territories; and black showed the swans marked in the wintering range of the Atlantic population.

The colored collars added to the interest taken in the spring migration and showed the visiting public that swans are being studied. Data are being gathered on pair and family bonding, winter and breeding area use, and the changing feeding habits of the swans. Study of the data will help to determine the manage-

*The whistling swan is a magnificent white bird.*

*Whistling swans feeding in stubble corn at Aylmer.*

*Whistling swans on Aylmer ponds. One neck collar is visible.*

ment required to ensure the survival of the species.

A daily study of the staging of whistling swans was carried out this past spring at Aylmer Wildlife Management Area. It began on February 21 when six swans were sighted in the sanctuary enclosure and continued for 75 days. Daily observations were made of the number of swans present, the age ratio of the birds, and their neck collars or leg bands.

After the first day, the number of swans increased slowly to reach 66 by March 1, and then rapidly to more than 3,500 by March 28. This large flock was observed within the enclosure, in the outer management area and in an adjacent harvested corn field.

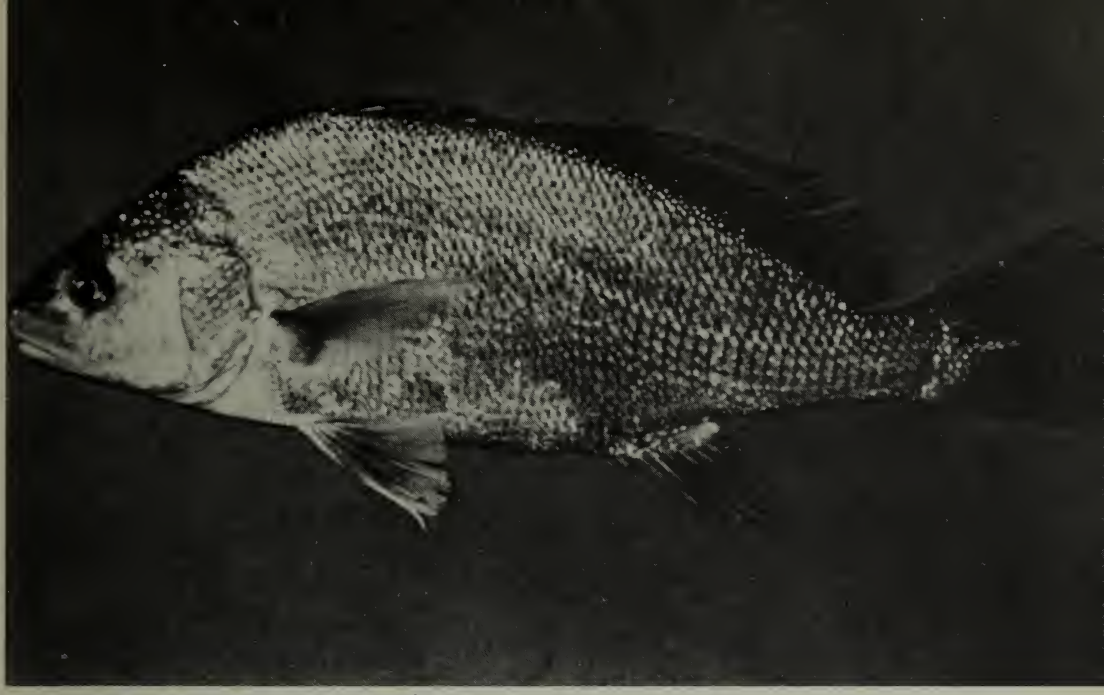
In the evening of March 28, as if on cue, at least 3,000 swans rose suddenly into the air and left the area, flying low, due west. It was a spectacular and noisy show — a delight to the eyes and music to the ears of nature enthusiasts! A week later only 22 swans remained.

Since swans have acquired the habit of field feeding, wildlife managers have been faced with two problems: lead poisoning and crop depredation. Corn may be an excellent high-energy food but it is harmful to swans in that the hard kernels grind any lead shot ingested and thus increase the susceptibility of swans to lead poisoning.

During aquatic feeding, the swans are likely to pick up some lead shot. As long as they are on a diet of soft aquatic vegetation, lead poisoning would be infrequent as most of the shot would pass harmlessly through the birds. It is with field feeding that this problem becomes acute.

When large numbers of swans feed in unplowed corn fields, the damage to adjacent winter wheat may be severe as the swans will leave the corn to graze on the succulent new wheat shoots.

Continuing research will contribute to a more comprehensive management of the species. The problems of swans are man-made and so must be the solutions.



*The freshwater drum. Photo by F. P. Maher.*

# FISHING FOR FLAVOR — DRUM OR SHEEPSHEAD

*by C. R. Jorgensen*
*Biologist, Lake Nipissing Fisheries Assessment Unit*

THE freshwater drum is best known as the sheepshead but it is also called croaker, grunter and thunderpumper because of the grunting noises it makes with its swim bladder. It is the only freshwater member of a large marine family including such well known sports fish as the channel bass, weakfish and kingfish.

The sheepshead is frequently mistaken for a bass. In fact the smallmouth bass divisions of fishing contests have been won by sheepshead! Although the sheepshead has the general shape of a bass and a similar double dorsal fin, it can easily be identified by its silvery sides and rounded tail.

Sheepshead have been reported to reach 60 pounds. In Lake Nipissing the maximum is about 30 pounds. Fish taken by anglers average about five pounds but 10-pounders are not uncommon.

The otoliths or bony stones in the inner ear are relatively large in the sheepshead. They are considered lucky by some fishermen and can be buffed into attractive jewelry.

Sheepshead are found as far north as Lake Abitibi and occur in all the Great Lakes except Lake Superior. They are bottom-living fish and are found over mud and sand in the shallow waters of lakes and rivers. They feed on snails and other molluscs and crayfish.

In Lake Erie, sheepshead are frequently taken by bass fishermen angling on or near the bottom with worms, shiners or crayfish.

Smaller sheepshead are sweet and flaky and may be prepared for eating like bass. The larger fish are coarse and should be filleted and ground to be used with a recipe requiring ground fish.

*The Drum Cookery*

DRUM WITH MUSHROOM SAUCE

2½ lb. drum filleted
1 egg beaten
2 tbsp. light cream
salt, pepper and flour
2 tbsp. butter

Dip the fish in the beaten egg, cream, salt and pepper mixture. Then dip in flour, and brown in the butter. Make a sauce of:

1 pt. fresh mushrooms
¾ cup chopped onions
¼ cup butter
1 tbsp. flour
¼ tsp. salt
1 cup light cream

Fry onion in butter; meanwhile make sauce

from rest. Serve this on the fish.

DRUM ROLL

Baking powder biscuit dough
(using 2 cups flour)
2 cups flaked cooked Drum
1 small onion, chopped
1 green pepper, chopped
salt, pepper, milk

Roll biscuit dough to an oblong about ¼-inch thick. Combine other ingredients, using enough milk to moisten. Mix well and spread mixture on dough. Roll as for jelly roll and cut into 1½-inch slices. Place on greased baking sheet and bake in hot oven, 425 degrees, about 20 minutes. Serve with parsley.

# LETTERS IN REVIEW

*Readers of 'Review' are invited to set forth their views in these columns*

## WILDLIFE LAWS

A feature of the history of wildlife legislation such as R. M. Alison's (Vol. 15, No. 2) would be very welcome to your readers but Mr. Alison surely missed the basic legal concept that distinguishes British from North American wildlife laws: the concept of property.

Just about all wild animals, including birds and fish, are considered private property in Britain because nearly all land belongs to an identifiable person, and the law establishes that the animals living on land (or fresh water) belong to the land and thus to the landowner (or owner of hunting or fishing rights). Thus the poacher, whether or not he breaches the conservation laws, is guilty of theft.

This legal tradition is alien to North America. Thus poaching on Crown or private land is generally considered a breach of the game or trespass laws but rarely theft.

In principle, our legal tradition in North America looks much better than the British, but what concerns me is its tendency to weaken conservation legislation. Considered as belonging to no one (and therefore every one) the passenger pigeon had no protection under the laws of property. In modern times, people who poach rainbows in Ontario or salmon in Quebec no doubt feel that the fish belong to no one, and so they are in no way to be considered thieves.

So far as I can see, poachers are just as much thieves as people who rob post offices. I look forward to reading in *Review* how, without abridging our valuable freedoms, property laws can help conservation laws, rather than hinder them as at present.

*Donald J. C. Phillipson*
*Hall's Road, R.R. 1*
*Carlsbad Springs, Ontario*

## COMMON LAW

On the subject of ownership of wild animals in Great Britain, W. B. Odgers (The Common Law of England, 1920) states that "Wild animals, such as deer, hares, rabbits, fish, birds, etc., were not, whilst alive and free, subjects of larceny at common law." They are nobody's property until they are killed, tamed or confined.

Other scholars of British common law, including Sir William Blackstone, have unamiously supported the concept of nil ownership of wild animals under common law until the animal in question has been reduced to possession.

There is no Ontario or federal statute or regulation thereunder vesting ownership of dead animals in the Crown. Furthermore, in Ontario, ownership of dead animals is vested in the landowner or any one designated by the landowner.

In Halsbury's Laws of England (4th edition, 1973), it is stated that "There is no absolute property in wild animals while living, and they are not goods or chattels" (and thus not subjects of theft).

Thus, certain landowners who have the exclusive right to hunt, take and kill animals on their own land have a qualified property in them while they are there. They are not the subjects of larceny until they are dead, at which time an absolute property right is vested in the landowner or in any one to whom he has granted shooting or sporting rights.

It is not unusual that Canadian and British laws relative to wildlife ownership are so similar. Bora Laskin (The British Tradition in Canadian Law) has explained the matter thus:

"In theory, (any) British statute which is within the reception period (prior to 1931) could be adopted or applied (in Canada) notwithstanding its subsequent repeal in Great Britain ... similarly with a common law rule abolished by British statute. . . ."

Because in Canada there has never been any legislation to abrogate the British common law on the subject of wildlife ownership, British common law essentially prevails here.

*R. M. Alison*
*Waterfowl Biologist*
*Wildlife Branch*

*Bush and adjacent clearings — a wildlife necessity. Photo by A. A. Wainio.*

# HOLLAND MARSH PROVINCIAL WILDLIFE AREA

THE famous market gardens of Holland Marsh have taken over nearly all the vast marshlands which once covered the Holland River valley south from Lake Simcoe. The lands have been drained and denuded to the beautiful black muck that grows great quantities of greens, fruits, flowers and root crops. As far as the traveller's eye can see, the gardens run back endlessly in manicured precision.

But all has not been lost. Holland Marsh Provincial Wildlife Area preserves a 1,300-acre remnant of the marsh and bordering forest along the eastern edge of the Township of West Gwillimbury. It begins two miles north of Bradford, the market garden centre, and runs along the lower reaches of the Holland River and the lower end of Cook Bay, the southern extremity of Lake Simcoe.

Traditionally a mecca for anglers and duck hunters since the Counties of Simcoe and York were first settled, the area is being managed and enhanced by the Ministry of Natural Resources to provide food and shelter for increased populations of waterfowl and other wildlife.

As marshes go, Holland Marsh had grown old and was past the time when the marsh vegetation was transected by numerous sloughs and bays of water. What was left was an almost unbroken sea of cattails and sedges of little value to ducks or other wildlife.

In this sad situation, an underground fire in

# HOLLAND MARSH

*Photos by A. A. Wainio*

*Observation tower.*

*The view from the tower.*

*A mallard on the nest.*

*A pond, dug by dragline, offers food and*

*The south end of Cook Bay, ideal habitat for ducks.*

*ose to cover.*

*Two worlds: marsh and gardens.*

*Buckwheat for wildlife on bank of marsh pond. Photo by J. Bellhouse.*

the 1940s had a most fortunate result. In a dry year, the slow-burning fire ate deeply into the peat and carved out an irregularly shaped area of shallow water – perfect for ducks. For years it was the only important open water in the cattails and at migration times it was frequented by hundreds of mallards, teals and other ducks.

The south end of Cook Bay, adjacent to the marsh, is ideal waterfowl habitat. It is shallow and weedy and offers an irregular pattern of vegetation and open water – food, shelter, nesting sites and water all within a few hundred square yards. This is attractive to nesting ducks who like to space themselves out on their own territories.

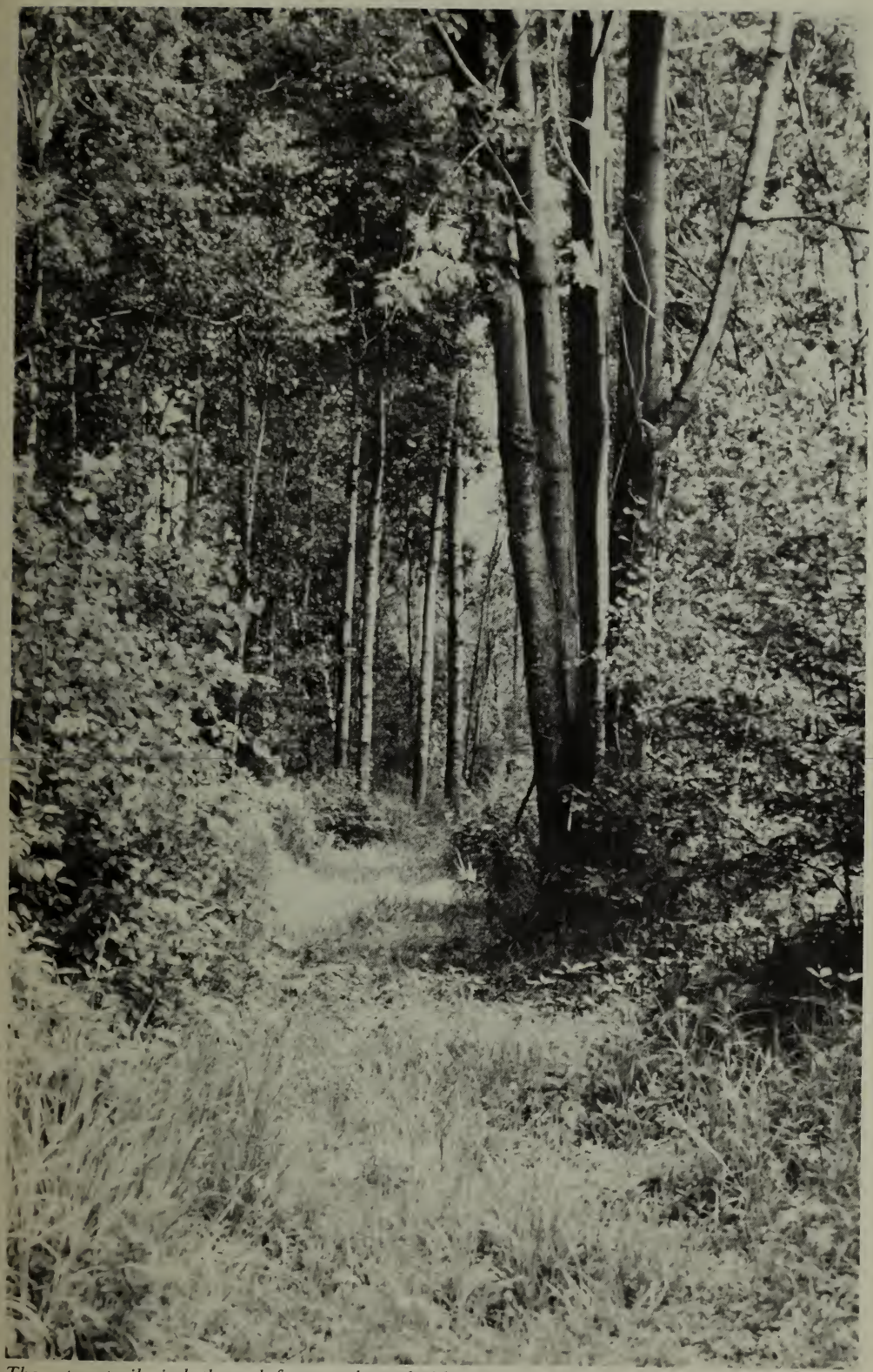
In the fall, it is the preferred spot for hunters who like to set up their own blinds. In the summer, especially, Cook Bay is a favorite haunt of anglers after bass and pike.

In the river marsh, a few areas have been dredged to create potholes of open water. Their edges are kept irregular to leave plenty of hiding places, and the excavated muck is piled along the edges to form high ground. The water is under 30 inches in depth to permit duck food items, water plants and their dependent insects, to become established. The ponds thus provide food and water adjacent to protective vegetation.

From the forest edge, deer, raccoons and other mammals often wander into the marsh, and they have begun to frequent the muck banks, the only high and dry sites in the wide expanse of cattails.

Along the western side of the marsh, a narrow border of forest separates the marsh from agricultural fields. Across the years the forest had become a dense stand of tall trees which let very little light reach the forest floor. For this reason it provided very little pasture or browse for ground dwelling animals.

Trees were felled along a road allowance



*The nature trail winds through forest and marsh. Photo by A. A. Wainio.*

*A 'woodpecker' tree with insects to sustain wildlife. Photo by J. Bellhouse.*

that ran the length of the forest fringe to leave a long and narrow opening in the tall timber. Succulent grasses and saplings sprang up quickly to provide food within the reach of deer, hares and cottontails. More trees were cut in selected spots and now the forest is dotted with grassy openings which attract and sustain wildlife.

A nature trail winds through the forest and out into the marsh to an observation tower overlooking the area. Visitors may observe the flora and fauna of both woodlot and marsh, and naturalists, photographers and other viewers return again and again as the seasons change.

Daybreak in early autumn is sure to find a hunter stepping into the misty morning of this marsh world.

Mallards, black ducks, wood ducks and blue-winged teal are the principal waterfowl species in the marsh while numbers of diving ducks may be seen on Cook Bay. Ruffed grouse and woodcock may be seen in the wooded areas on the west side of the marsh.

Hunting is permitted in season Monday through Saturday. There is no charge for hunting and no limit on the number of hunters. Hip or chest waders are necessary in the marsh. Positioned blinds are not rented but hunters may erect their own on Cook Bay.

For further information on Holland Marsh Provincial Wildlife Area, readers may apply to:

Fish and Wildlife Supervisor
Ministry of Natural Resources
Maple
Ontario L0J 1E0.
Telephone (416) 832-2261 – ext. 211.

# LETTERS IN REVIEW

*Readers of 'Review' are invited to set forth their views in these columns*

## SOMETHING TO SING ABOUT

I have been reading *Review* for some time now and find it a well researched publication. I enjoy it very much and would like to offer a suggestion if I may.

I am a member of the East York Barbershop Singing Society, and the entire Ontario district has combined to purchase a tract of 88 acres at Baldwin, Ontario, as a society campground. Three of the members, myself included, have been assigned to the conservation committee to prevent abuse of land, water and trees.

Some time ago, *Review* ran a short article on how to provide nesting areas for marsh birds. We followed your suggestions and now our marsh population has increased greatly and has a more diverse species count.

My suggestion is: Why not run more how-to-do-it articles that individuals or small groups can use to good advantage.

It is also important to carry what-not-to-do information so we will not inadvertently destroy wildlife habitat.

*Larry Boccioletti*
*Downsview, Ontario*

Thanks for suggestion. If you have any questions about wildlife management or habitat, call our nearest office and ask for fish-and-wildlife. In your case, call Maple at (416) 832-2262 – ext 211. Happy harmony.

*Aerial view of 'cursed' ponds in Thackeray Township.*

# "CURSED POND OF THE BIG NOISE"

*Report and photos by L. C. Chamberlin*
*District Biologist, Timmins District*

FOR years tales of a "death pond" persisted in the Lake Abitibi area of northeastern Ontario. It was known to local Indians as the Cursed Pond of the Big Noise and was supposedly inhabited by demons who caused the death of anything approaching within "the radius of its evil".

In 1950 the Northern Daily News reported that a trapper discovered several dead moose around a pond due south of Lake Abitibi and 80 kilometres northeast of Kirkland Lake.

A few years later an angler reported a pond which "erupted" and blew mud and water four or five metres in the air. The rumbling noise, which followed the eruption, continued for some time and could be heard for about 1 km as the fisherman hurriedly left the area.

The pond, or ponds, were located on June 4, 1971, by a helicopter pilot while patrolling a wild fire in Thackeray Township. He reported a dead moose in one of the potholes to the local conservation officer who investigated the site and found three cow moose dead in the more southerly of the two ponds. Two appeared to have died within the previous two weeks and were lying on their sides with legs outstretched. The third had died only recently and her twin calves were still alive and nearby. Both calves died within a week.

The Thackeray potholes are clay-bottomed ponds 20 km south of Lake Abitibi. They are connected by a northward-flowing stream that runs into Thackeray Creek and they are also fed by small but numerous intermittent springs throughout the pond area. Occasionally, massive upwellings of water in either or both ponds add to the water supply. Their maximum depth is 1 m and their average depth is less than 30 cm.

An abandoned beaver house and neglected beaver dams at the north ends of both ponds indicate that beaver played a role in forming the ponds.

Examination of the ground revealed the

*A mired moose, helpless until two conservation officers pulled her out.*

*G. Himburg and D. Barnacal rescue cow moose trapped in death pond.*

skulls and bones of at least 10 moose within 30 m of the ponds. Several of the skulls had stub antlers attached. Because of the distance of the bones from the ponds, and because of the outstretched legs of the three dead moose, it was suspected that some poison was the cause of death.

In June, 1971, the writer observed eruptions in the ponds with upwellings of ice-cold water that disturbed the bottom sediment and caused the ponds, the outlet creek and Thackeray Creek to run milky.

The clay shore of the ponds was examined and found to be solid in places but, when stamped upon, the clay bottom began to undulate and swiftly change to the consistency of soft jelly except for the upper 2 to 10 cm.

A geochemist with the former Ontario Department of Mines and Northern Affairs examined the pond area and suggested the pH of the pond water (8.1 to 8.7) was too high to contain in solution any toxic heavy metals that might have poisoned the moose.

He pointed out that the irregular upwellings of water were directly related to a large esker complex through which water seeps easily. At the pond site, the sand and gravel of the esker are overlaid by a relatively impervious layer of clay. Water, flowing through the sand and gravel, accumulates under the ponds. Pressure builds up and suddenly the shallow clay layer ruptures to release the water.

Further investigations in the fall of 1971 failed to reveal toxic plants growing in or around the pond. By this time the remains of the dead moose were scattered on the shore and in nearby bushes. The signs indicated they had been removed and fed upon by black bear and wolves. At this time I tested the bottom of the south pond by walking out on it. For about five seconds it supported my weight but when it suddenly broke down and formed a dish-shaped depression I jumped out quickly.

Conservation officers kept a watch on the potholes during the spring of 1972. A yearling cow died in the south pond in early May. Later another yearling cow, mired in the north pond, was pulled out with considerable difficulty by seven men using a block and tackle. Unfortunately, the animal's front leg was broken and she had to be destroyed.

To protect the local moose, the ponds were

*The rescued moose was too tired to browse. The author feeds her by hand.*

fenced off during the summer of 1972.

That the Thackeray potholes are heavily used by moose is indicated by the large number of deeply-rutted trails leading to the ponds and the numerous moose remains. The scarcity of vegetation eliminates the possibility that moose are attracted to the ponds for feeding.

It is well known that "salt lick" areas have a strong attraction for moose and various types of moose licks have been identified in North America. They consist of muddy springs, muddy ponds, mineral springs, seepage from shale deposits, white encrustation on shale, and areas of clay till or mudstone. In eastern North America, salt licks are usually seeping springs and are used by moose wherever they occur. The licks and the surrounding vegetation are often badly trampled and over-used.

Considerable work has been conducted to determine the chemical composition of salt lick waters and soils and there has been much debate regarding the attracting constituent. Many authors contend that sodium is the sought-after material while others maintain that phosphorus or phosphate and calcium are sought. Still others conclude that trace elements are the attraction.

However, analysis of the water and bottom samples collected from the Thackeray ponds in 1975 indicate only "normal" amounts of the elements generally found in high concentration in natural salt licks. Therefore, the Thackeray ponds cannot be considered a natural salt lick.

The attraction of the ponds for moose appears to be the open water provided in winter – the only open water for many kilometres. It is supposed that the winter use of the ponds establishes a tradition continued in summer.

Once attracted to the ponds, a number of moose become mired in the bottom sediment. It is hypothesized that because moose are adapted to boggy situations they do not feel

*Moose are barred from death ponds by a fence maintained since 1972.*

threatened when sinking until they are trapped by the quicksand-like clay bottom.

It is well known that moose die of a variety of natural causes other than predation. Some investigators believe that natural mortality is much higher than was earlier suspected. Studies have indicated that calves encounter the heaviest mortality by drowning, entrapment by vegetation and abandonment. Adult moose die by collisions with cars and trains, by falling into old wells or open mine pits, by breaking through ice and drowning, and by succumbing in deep mud.

As many journals and magazines have reported, moose can become helplessly mired in mud in a marsh or by the edge of a weedy lake. People who have attempted to rescue moose can attest to the difficulty in pulling a large moose out of deep mud. Ropes and manpower are sometimes not sufficient and heavy machinery is called in. From the large number of reported incidents and our own observations of the Thackeray ponds, it appears that death by miring in mud may be a more common experience than previously thought.

Despite the length and strength of their legs, moose often fail to extricate themselves from deep mud. Their death comes quickly by drowning or slowly from exposure. It is likely that a portion of the carcass is eaten by bears, wolves and other carrion feeders in the water. When the carcass is partially devoured, it is pulled out on shore and consumed.

The Cursed Pond of the Big Noise remains a special danger to moose because of the geological structure of the area. The Thackeray potholes are no longer a mystery but they are a natural death trap for moose.

The responsibility for protecting the local moose has been undertaken by Kirkland Lake fish and wildlife staff who visit the ponds regularly and maintain the surrounding fence.

*Cover is of utmost importance to brown trout. Photo by W. D. Mansell.*

*Sydenham River browns measure 11.5 inches at two years, 15.5 inches at three years and 19 inches at five years. Photo by W. D. Mansell.*

# THE ELUSIVE BROWN TROUT

*by John George, Fisheries Technician*
*Lake Huron Fisheries Assessment Unit*

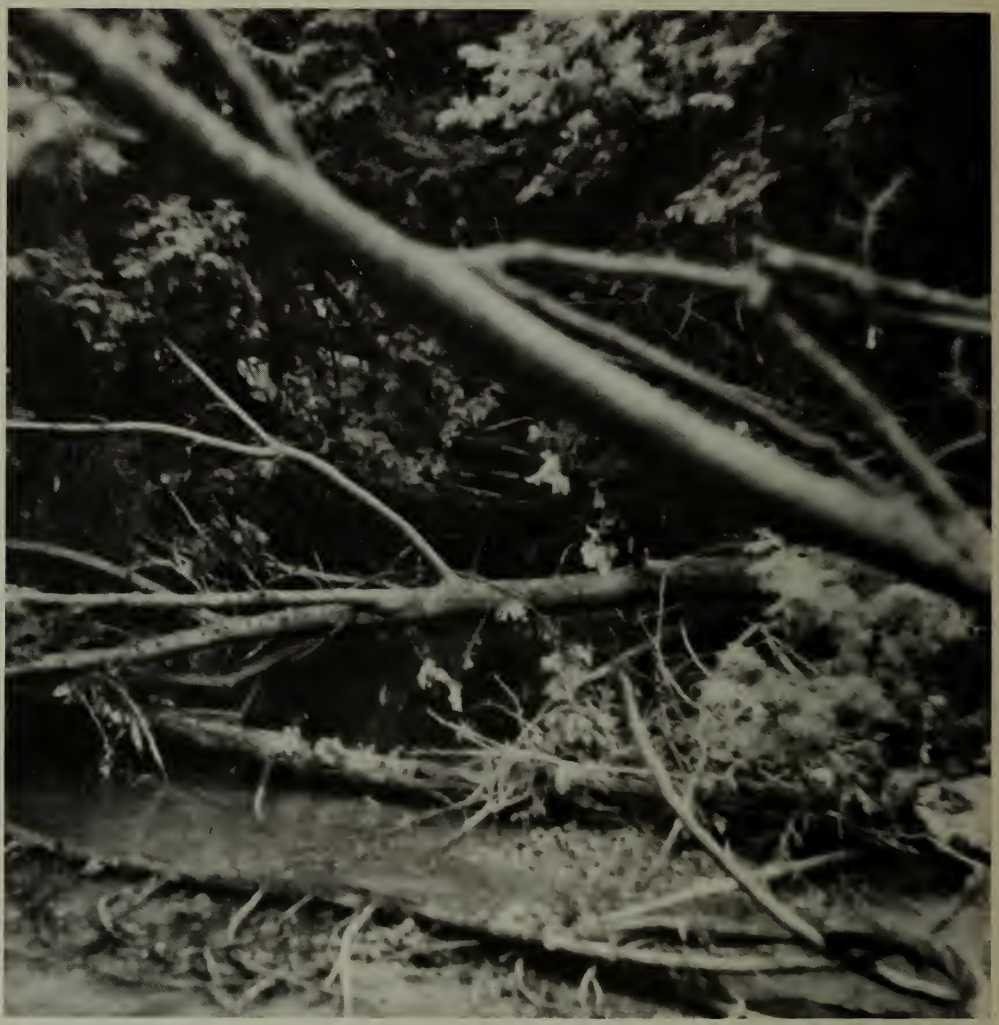
A NEW and beautifully colored salmonid was introduced into the productive limestone streams of southern Ontario in 1913. It was the brown trout, *Salmo trutta,* a native of Europe where it had evolved a hardiness and wariness not found in brook trout.

Plantings of the brown continued until 1961 but anglers reported poor returns to the creel compared to rainbow and brook trout catches. Brown trout were difficult to raise in hatcheries and were believed to be carriers of furunculosis, a fungal disease which causes a high mortality rate in brook trout. Although the planting program was discontinued, the brown had become well established and since then has provided one of the province's most challenging sport fisheries.

A brown trout is easily recognized by a light brown dorsal surface, yellow sides and a yellow belly. Dark brown and black spots are scattered over the head, back and sides. Orange or red blotches, haloed by lighter colors, are often present on the sides and adipose fin (a fleshy appendage behind the dorsal fin) which is characteristically tinged with orange. Male browns in spawning condition are hook-jawed and brilliantly colored.

Peak feeding ranges for brook and brown trout vary considerably. Brown will feed to a greater extent and grow faster in waters 18 to 24 C (65 to 75 F). Brook trout seem to prefer a 12 to 18 C (56 to 60 F) temperature range.

In Norfolk County, an intensive biological stream study was done on Big Creek, a tributary to Lake Erie, in 1974. Brown trout were found to have developed a naturally self-sustaining population throughout much of the



*Overhanging cover on Bighead River is a boon to browns. Photo by W. D. Mansell.*

main stream and several of its tributaries. A number of other feeder streams with clear, cold spring water contain indigenous brook trout but no browns. This appears to demonstrate that a thermal barrier exists. In streams where temperatures are best suited to brook trout, they will often dominate. Streams with marginal water temperatures for brook trout are often dominated by browns.

Brown trout are tolerant to temperatures close to 26 C (80 F) for short periods providing abundant oxygen is present. Slow moving, productive streams seem to support the best populations as long as adequate spawning areas are available. Moderate turbidities, heavy silting and low amounts of pollution can be tolerated. Streams in which flash flooding and severe erosion occur often contain extremely good brown trout populations.

The ability of the canny brown trout to avoid the angler's creel results in large browns living in relatively small streams. These lunkers become cannibalistic, but it must be remembered that all large trout of every species prey upon their own (egg, fry and juvenile).

Brown trout are stream spawners. Some may travel considerable distances upstream from lakes while stream dwellers may move only short distances. During October and November, when water temperatures chill to between 6 to 9 C (42 to 48 F), "redd" or nest construction begins. A redd is a shallow depression and hummock constructed on the bottom in the stream current. Accompanied by one or more males, the female turns on her side and excavates a depression with powerful up-and-down movements of her tail. While she digs, the dominant male chases away intruders,

*Brown trout pool on Otter Creek with important log cover. Photo by W. D. Mansell.*

resulting in numerous clashes. When the dug-out area is of correct proportions, the female drops back into the centre. The dominant male instantly moves in and the female arches her back. Eggs and milt are released simultaneously and are carried to the bottom of the pit by a back eddy. The female moves a short distance upstream and buries the eggs by fanning gravel back over them. She digs several more pits and the spawning process is repeated in each until all the eggs are laid.

Spawning occurs in riffles or tails of pools where oxygenated water percolates through the redd. The bottom material at the site varies from gravel to sand and may even include clay particles. Male fish may mature at two years while females ripen at three years or later. Large female brown trout may lay up to 3,000 eggs.

Incubation usually lasts most of the winter with hatching time depending on temperature. During March and April, tiny sac fry, known as alevins, wiggle their way up through the substrate and move to an eddy or pool. The life-supporting yolk sacs are absorbed after three to four weeks and the fry become more mobile. These tiny fish, about three-quarters of an inch long, are light brown in color with oval blotches or parr marks down each side. Small spots, between each parr mark along the back and head, are black or brown in color. As the fry become larger, the parr marks and spots become more distinct and the young browns are known as 'parr'.

Feeding greedily, brown trout often reach lengths of 10 to 15 cm (4 to 6 in.) by the first fall, 25 cm (10 in.) by the second, 38 cm (15 in.) by the third and 43 cm (17 in.) by the fourth. A

large brown in the 64 cm (25 in.) category may be eight years or older. Browns seldom achieve this age although a recent study revealed a 13-year-old brown from the Sydenham River in Grey County.

Brown trout are often nocturnal in their feeding habits. Large individuals seldom stray from their lair until they are protected by darkness. At this time, they become quite brave, chasing schools of minnows or gulping down ducklings, turtles and even small rodents that attempt to navigate the pool. Smaller browns feed abundantly on the surface, especially when fly hatches occur. After they reach a pound or so in weight, a more filling diet of fish and crayfish is preferred. Feeding and growth slows considerably in the icy water of winter.

Cover is of the utmost importance to brown trout. Dense overhanging brush, undercut banks and log jams are ideal habitat. Browns will abandon sections of the stream lacking dark secluded holes in which to hide because of their shy, wary nature.

Browns are territorial and the largest individuals possess the best pools. If a pool is vacated, another big brown will often move in. When occupying warmer, more productive streams, browns co-habit with other fish such as minnows, darters, sunfish and suckers. While these species may compete for food and space with the browns, they also supply them with forage.

Brown trout are susceptible to a number of diseases and parasites, especially in marginal conditions. Various parasites, such as flukes and tape worms, may inhabit the digestive tract and result in slow growth or poor physical conditions. Furunculosis, which is generally considered a hatchery disease, has caused considerable post-spawning mortality in some American streams. *Saprolegnia* or water fungus, a secondary infection, can kill sick or wounded fish. It also may destroy all the eggs in a redd if a single egg becomes infected.

Hybridizing of brown trout with other salmonids has been tried for a number of years under experimental laboratory conditions in an attempt to bring out the best traits of each species. The most successful cross to date seems to be with brook trout. The eggs of brown trout are fertilized by the milt (male sperm) of the brook trout to produce 'Tiger Trout'. Wisconsin has planted numbers of these in the Great Lakes. Although they supply a better return than brown trout to the angler on a put-and-take basis, high mortalities and the lack of natural reproduction make it an expensive operation.

*Brown trout angler with proof of skill.*
*Photo by J. C. Weir.*

Brown trout may become the salvation of the trout stream fishery in southern Ontario. Poor land management and pollution have caused a drastic decline in cold water fish. Uncontrolled cattle access, ditching, clear cutting of wooded areas and urban development have created flash flooding, erosion, silting and drying-up of many drainage systems. Brown trout are more tolerant of these adversities than brook and rainbow trout and the latter species tend to disappear first.

Many anglers complain about their local brown trout stream being fished out or containing only a few small individuals. In many of these cases experimental sampling has shown an abundance of trout. In almost all cases, large numbers of browns were turned up in relatively small areas. Many of these were large individuals, available to the skilful angler.

The brown trout fishery in the Counties of Grey and Bruce is one of the best in southern Ontario with self-sustaining populations in many streams of which the best known are the Sydenham River, Albemarle Creek, Bighead River and the upper Saugeen. Good brown fisheries are also found in smaller streams such as Crane River, Judges Creek, South Spey River, the upper Pottawatomi and parts of the Beaver River watershed.

The browns taken by angling in this area average between one and two pounds but larger individuals are often creeled. Browns ranging from 10 to 20 pounds have been reported over the years.

The truly dedicated brown trout fishermen venture forth at the crack of dawn or late at night and they get most of the browns. A quiet approach, light tackle, patience and natural presentation of the bait are of the utmost importance in catching the big ones.

Tackle varies from live bait to a wide variety of lures. Bait such as dew worms, crayfish, minnows, hellgrammites and even small mice can tempt monster browns if presented with care. Artificial lures most commonly used are small spinners, spoons and plugs. Fly fishermen can have wonderful sport during the heavy insect hatches throughout most of the summer and early fall.

Many dedicated fishermen believe that high-quality angling reasonably close to our major urban centres is almost impossible to find. This is not really so. Brown trout are abundant and found in the kind of aesthetically pleasing environment which would satisfy the most demanding angler. They offer a challenge to the skilful angler unmatched by any other salmonid in Ontario.